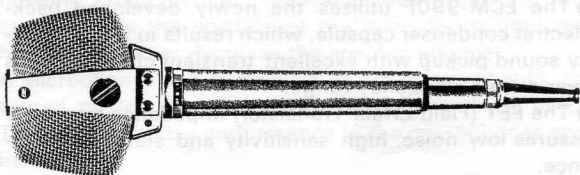




**ONE-POINT STEREO  
ELECTRET CONDENSER MICROPHONE**

# ECM-990F



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Before using your microphone, please read this manual completely to become familiar with all its features and capabilities.

Keep this manual handy for future reference.

## FEATURES

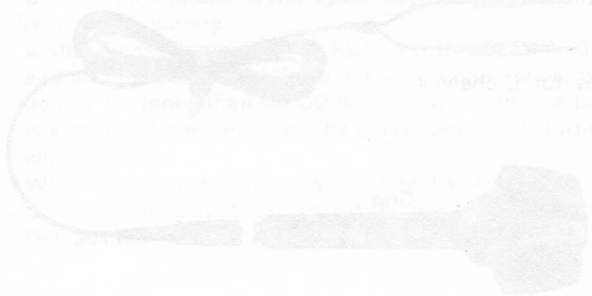
- The ECM-990F utilizes the newly developed back-electret condenser capsule, which results in a high quality sound pickup with excellent transient characteristics over a wide frequency range.
- The FET (Field Effect Transistor) impedance translator assures low noise, high sensitivity and stable performance.
- Convenient stereo miking with built-in two microphone capsules and variable direction axis.
- Battery check lamp using a Light Emitting Diode.
- The built-in wind screen effectively reduces the wind noise.
- Lowcut switch to prevent proximity effect.
- Extremely long battery life (more than 4,000 hours).

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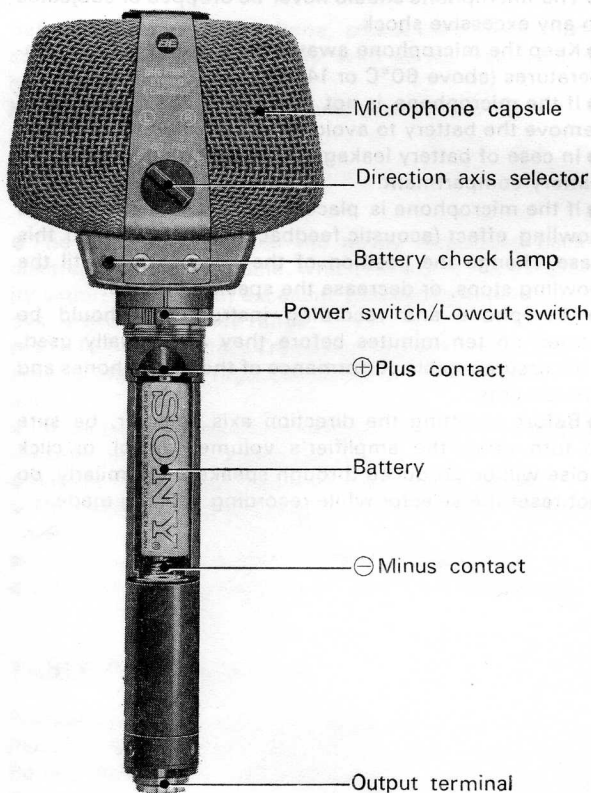
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## PRECAUTIONS

- The microphone should never be dropped or subjected to any excessive shock.
- Keep the microphone away from extremely high temperatures (above 60°C or 140°F).
- If the microphone is not to be used for a long time, remove the battery to avoid any possibility of corrosion.
- In case of battery leakage, wipe off any deposit in the battery compartment.
- If the microphone is placed too near the speakers, a howling effect (acoustic feedback) may occur. In this case, change the position of the microphone until the howling stops, or decrease the speaker volume.
- Microphone and recording instruments should be turned on ten minutes before they are actually used. This assures stable performance of the microphones and instruments.
- Before resetting the direction axis selector, be sure to turn down the amplifier's volume control, or click noise will be produced through speakers. Similarly, do not reset the selector while recording is being made.



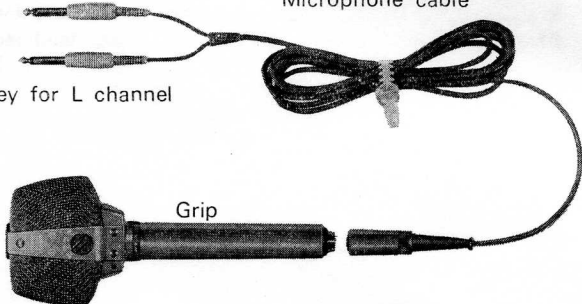
## PARTS IDENTIFICATION



red for R channel

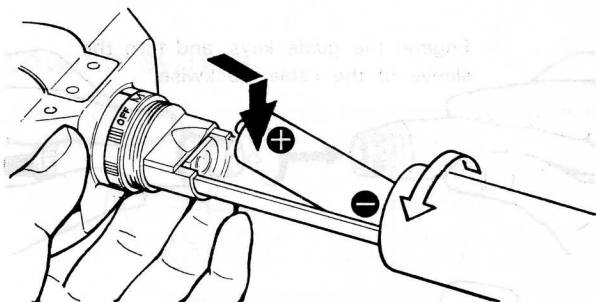
Microphone cable

grey for L channel



## BATTERY INSTALLATION

- ① Open the battery compartment by turning the sleeve counterclockwise.
- ② Insert the battery into the battery compartment.  
Check for correct polarity.



- ③ Close the compartment by turning the sleeve clockwise. Be sure to close the sleeve firmly, otherwise malfunction or noise may occur due to the loose fit.

### Battery condition checking

In a moment, when the power switch is moved from OFF to M, the battery check lamp illuminates. This lamp shows the battery condition.

Bright steady light: Assures normal operating voltage (1.5 V).

Dim light: Assures 20 to 30 hours of operation.

Not lit: Replace with a fresh battery.

To obtain higher performance from the ECM-990F, a little earlier replacement of the battery is recommended.

### Notes

● If the microphone is not to be used for a long time, remove the battery.

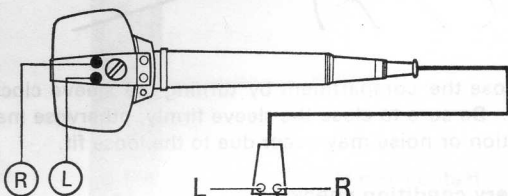
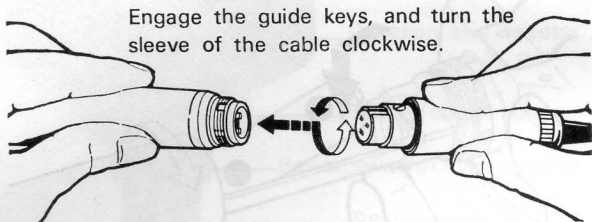
● Manganese battery Sony SUM-3S, EVEREADY 1015 and alkaline battery EVEREADY E91 will operate continuously for more than 4,000 hours. When the battery is exhausted, sensitivity will be decreased and distortion will be heard.

When this occurs, replace with a new battery.

● To prolong the battery life, set the power switch at the OFF position when the microphone is not used.

## CONNECTIONS

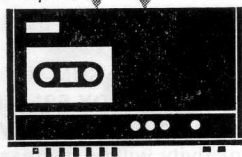
The supplied microphone cable has a Sony connector at one end and two phone plugs at the other end. Insert the Sony connector into the microphone, and the phone plugs into the microphone inputs of your equipment such as a mixer, a tape recorder, an amplifier, etc.



Grey to L ch.

Red to R ch.

to microphone inputs

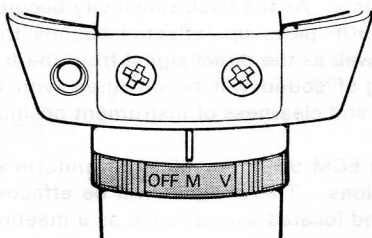


## HOW TO USE

The letters L and R on the microphone housing is indicated by looking from the recordist to the sound source. Be sure to point the microphone toward the center of the sound source, with the letter indication side up. If it is upside down, the L and R channels are reversed.

## LOWCUT SWITCH

The lowcut switch adjusts the low frequency response as shown in the response curves on page 11.



### "M" (Music)

This position provides a flat response over a wide frequency range. Normally use this position, especially for music programs. If some room acoustics happen to emphasize low frequencies, resulting in "boomy" sound pickup, set the switch to [V], even with a music source.

### "V" (Voice)

This position reduces the response in the low frequency range. When a microphone is placed in close proximity (2.5 cm or less) to the sound source, there may be a boosting of the bass response (This is "proximity effect"). The [V] position is preferable for close-miking of voice, and in situations where air conditioners or other sources of low-frequency ambients are encountered.

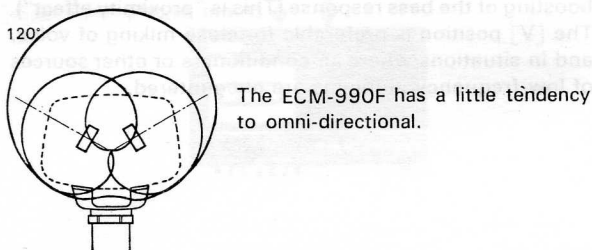
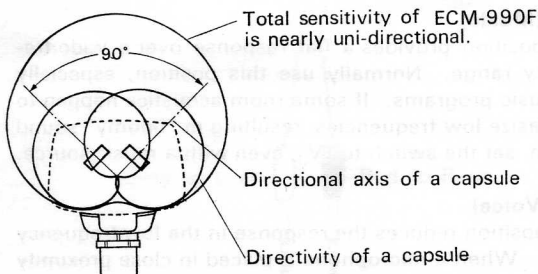
## DIRECTION AXIS SELECTOR

The total sensitivity of the ECM-990F can be varied, as shown below, with the direction axis selector which changes the directional axis of the built-in two microphone capsules. Select the most suitable setting according to the sound source and your taste.

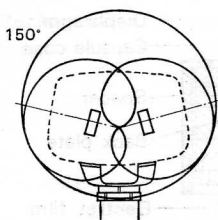
**90°:** This position is effective to suppress unwanted sounds and to mike a small musical group in stereo recording. The position of the individual instrument will be miked clear.

**120° and 150°:** These positions will be suitable to wide variety miking. As the back sensitivity becomes wider, the ECM-990F picks up reflected sounds from walls, ceiling, as well as the direct signal from the front. Natural feeling of sound will be obtained with its spatial impression and clearness of instrument position.

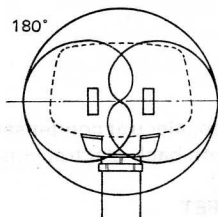
**180°:** The ECM-990F provides the uniform sensitivity to all directions. This position will be effective to pick up all around located sounds such as a meeting.







Total sensitivity is much close to omni-directional.



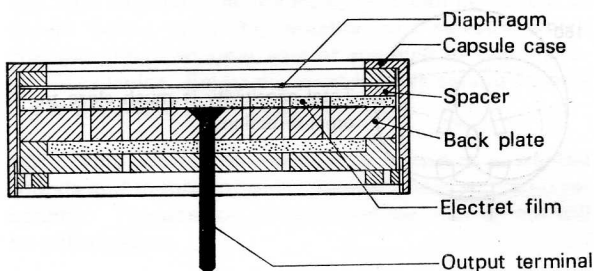
ECM-990F provides a complete omni-directional pattern.

## BACK-ELECTRET CONDENSER CAPSULE

After intensive research and critical listening tests it became apparent that the tone quality of the microphone is ultimately determined by the physical characteristics of the diaphragm material. The best material now available is a thin polyester film from  $4\text{ }\mu\text{m}$  to  $6\text{ }\mu\text{m}$  in thickness, used in conventional condenser microphones such as the Sony C-37P and C-47.

Sony engineers have developed a technique to adhere the electret material to the back plate, and have built a new electret capsule, called back-electret condenser capsule, which permits the use of a thin polyester film of a micronic order of thickness as the diaphragm instead of the thicker film used in the conventional electret condenser microphone. The construction is as shown on the next page.

The thinner diaphragm assures high compliance because of the reduction of its mass, which results in a great improvement of the frequency response and directivity at low frequencies, and improves the transient characteristics over the entire frequency range. This makes possible electret condenser microphones having response characteristics equivalent to laboratory grade condenser microphones.



## SPECIFICATIONS

### General

**Type** One-point stereo, electret condenser microphone (with back-electret condenser capsule)

**FET** Sony junction FET

**Battery** Penlight battery size AA  
Manganese Sony SUM-3S,  
EVEREADY 1015  
Alkaline EVEREADY E91  
Mercury EVEREADY E9

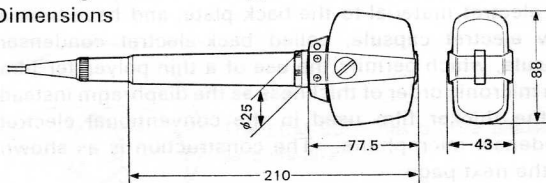
**Microphone output terminal** Sony connector

**Microphone cable** 3.9 mm dia., 3 m long  
single-conductor shielded for each channel

**Cable output terminal** Two phone plugs

**Mounting thread** PF 1/2

### Dimensions



unit : mm

**Weight** 320 g with battery

**Finish** Metallic-dark silver-grey finish

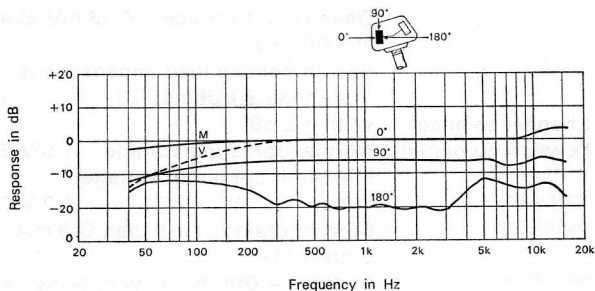
### Supplied accessories

Microphone holder.....1  
Microphone cable .....1  
Battery Sony SUM-3S.....1  
Carring case.....1  
Stand adaptor.....1

## Performance

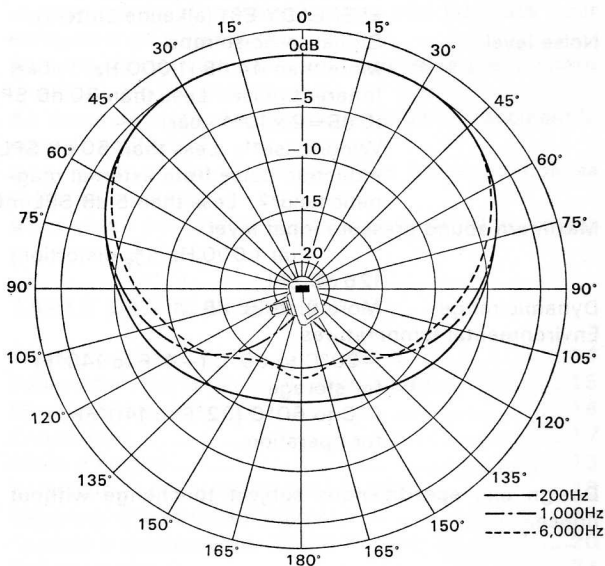
Frequency response\*

40 Hz – 16,000 Hz



Directivity\*

Uni-directional per each capsule



\* The frequency response and directivity characteristic curves are measured on the axis of one microphone capsule, with the direction axis selector set to "150°" position.

Output impedance	200 ohms $\pm 20\%$ , unbalanced
Output level (deviation $\pm 3$ dB)	<p>Effective output level: <math>-57</math> dBm  (<math>0</math> dBm = <math>1</math> mW/<math>10</math> <math>\mu</math>bar at <math>1,000</math> Hz)  Open circuit voltage: <math>0.13</math> mV/<math>\mu</math>bar at <math>1,000</math> Hz  Recommended load impedance is more than <math>3</math> k ohms.</p>
Channel balance	Within $2$ dB
Power requirements	<p>Normal operating voltage: <math>1.5</math> V DC  Minimum operating voltage: <math>1.2</math> V DC  Current drain: Less than <math>0.3</math> mA  Battery life:  Approx. <math>4,000</math> hours with Sony SUM-3S, EVEREADY 1015 (manganese battery)  Approx. <math>4,000</math> hours with EVEREADY E91 (alkaline battery)</p>
Noise level	<p>Signal-to-noise ratio:  More than <math>44</math> dB (<math>1,000</math> Hz, <math>1</math> <math>\mu</math>bar)  Inherent noise: Less than <math>30</math> dB SPL  (<math>0</math> dB = <math>2 \times 10^{-4}</math> <math>\mu</math>bar)  Wind noise*1: Less than <math>50</math> dB SPL  Induction noise from external magnetic field*2: Less than <math>5</math> dB SPL/mG</p>
Maximum sound pressure input level	<p>(at <math>1,000</math> Hz, <math>1\%</math> distortion)  <math>126</math> dB SPL</p>
Dynamic range	More than $96$ dB
Environmental temperatures	<p><math>-20^{\circ}\text{C}</math> to <math>60^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math> to <math>140^{\circ}\text{F}</math>)  for storage  <math>0^{\circ}\text{C}</math> to <math>60^{\circ}\text{C}</math> (<math>32^{\circ}\text{F}</math> to <math>140^{\circ}\text{F}</math>)  for operation</p>
Design and specifications subject to change without notice.	

\*1 Wind noise is the value measured by applying a wind velocity of  $2$  m/sec. from all directions to the microphone. The mean value is taken and converted to the equivalent input sound level.  
 $0$  dB =  $2 \times 10^{-4}$   $\mu$ bar

\*2 The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of  $50$  Hz,  $1$  milligauss. The maximum noise value is taken and then converted to the equivalent input sound level.  
 $0$  dB =  $2 \times 10^{-4}$   $\mu$ bar

